

# PORTABLE MEDIA PLAYERS

## INTRODUCTION

Hard disk MP3 players have changed the way many of us listen to music. Once you're used to having your music collection with you all the time, though, devices such as DVD or video recorders can seem very limited. Why not carry all your favourite TV shows and films with you, too, and watch them during your commute or lunch break?

The best portable media players have large colour screens and plenty of storage to swallow up huge collections of video, music and picture files. But the range of players available can be confusing, and different technologies, storage types and compatibility make it hard to know what to buy. This month, we've tested nine of the latest media players. We reveal which are the ones to watch – and which are best screened out.

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# POCKET MOVIES!

If you can't bear to be parted from your favourite films and TV programmes, why not pop them on a portable media player? We test nine pocket-sized marvels

## Choosing a... Portable Media Player

**P**ortable media players are all designed to do roughly the same job. They store your video, photo and audio files on internal hard disks or memory cards and play them back on an integrated screen and speakers or headphones. However, the players here differ greatly in terms of storage space, file compatibility, battery life and the ease with which you can copy content on to them. We'll explain what you should look for and which features are most useful.

### THE BIG SCREEN

Your portable media player should have a reasonably large screen if you want to watch TV or films on it. The largest screen in the group is the iubi PMP2010's huge 4.3" LCD. Archos's Gmini 402 Camcorder and Creative's Zen Vision M suffer for their compact dimensions with 2.2" and 2.5" displays. Both these devices also have screens with a standard 4:3 aspect ratio, so if you watch a widescreen film it'll be heavily letterboxed. This makes the size of the picture you see even smaller.

### INNER SPACE

The larger your portable media player's hard disk, the more storage space you'll have for films and music. If

you have room left over, you can also use the device as an external hard disk for files and documents. The Archos Gmini 402, GeCube PMP100, PQI mPack P600 and Vivitar DMD-P20 all have 20GB of hard disk space, which is enough for around 20 films or 5,000 songs, depending on the type of files you'll load.

If you want more room, the Archos AV 500 and Creative Zen Vision M have 30GB of space and Smartdisk's Flashtrax XT has 40GB. The iubi PMP2010 has an enormous 100GB disk that can hold more than 100 films if they are compressed significantly. The GP2X-F100 has no internal hard disk, so you'll have to buy an SD card to store your media files. We tested ours using a 2GB SD card, available for just under £100 including VAT from [www.crucial.com/uk](http://www.crucial.com/uk).

### SWAP SHOP

The method for copying files on to your portable media player differs from device to device. Windows recognises most of the players here as an external hard disk, so you can simply drag files on to them using Windows Explorer or My Computer. This is simple enough, but you'll need to make sure the files are in a format that your player can read.



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Windows recognises Creative's Zen Vision M as an MTP Media Player. Rather than simply copying files across to the device, you must transfer them to the player using Windows Media Player. The advantage of this method is that Windows Media Player knows which type of files the portable player can open and converts any unsupported files as it copies them. The downside is speed; transferring files this way is usually slower than simply copying them across in Windows.

The Archos players use an unusual combination of the two systems. They can be used as an external hard disk or as an MTP Media Player depending on how you configure the device, giving you the best of both worlds.

## CODEC MOMENTS

If you already have plenty of audio and video content on your PC, you won't want to encode it again. If this is the case, look for a media player that is compatible with most, if not all, of the files you have. Most of the players support video encoded with the XviD or DivX codec. These are often used for compressed video downloads.

Six players also support Microsoft's WMV format, but only when it is encoded in the low-quality Simple Profile format. The PQI and GeCube players play VOB files of the type found on DVD Video discs. This is clever, but most DVDs use encryption techniques that prevent you simply copying video files from them.

All the players can handle MP3 audio, but the GP2X-F100 is the only one that doesn't support Microsoft's WMA format. Four devices also play the open-source Ogg Vorbis format. Creative's Zen Vision M and the Archos players can play DRM-protected WMA files downloaded from services such as Napster and MSN Music.

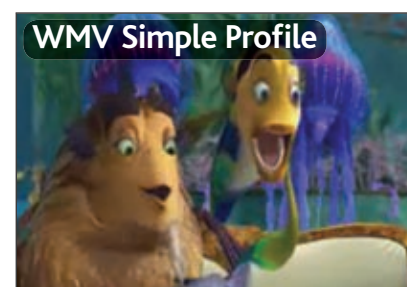
## BATTERIES NOT INCLUDED

Having hours of entertainment on your portable media player is no use if you don't have the battery life to play them. Five of the players lasted long enough to play a couple of normal

feature-length films. However, iubi's PMP2010 only just gets through a standard two-hour film and the GP2X-F100 has only enough life for a couple of TV programmes. The GP2X-F100 is the only player here without a rechargeable battery and requires two AA batteries.

Seven of the players can connect to a TV using a composite video cable for playback, so you could watch a film in a hotel room, for example. Four can record from a composite video source such as a Freeview box directly to the hard disk. Video recorded this way is viewable, but don't expect DVD quality.

## Quality comparison



▲ These two film stills show the difference between a high-quality DivX file and a file encoded with WMV Simple Profile. The DivX file has a higher resolution and far less compression. The portable media players in the group that can play WMV files support only the Simple Profile.



## ARCHOS AV 500



£281 inc VAT



Archos's AV 500 may be expensive, but getting files on to it is simple and its video and audio quality is the best in the group.

The AV 500 feels better made than the other players we tested this month and its brushed metal finish looks classy. The player's graphical interface is fast, but the control system is slightly odd. You scroll through the player's functions and media files using a directional keypad, but the player's settings and context-sensitive options are controlled using a separate cluster of buttons beneath the keypad.

Getting media files on to the AV 500 is easy, as you can set it to function as either an external hard disk or a Windows MTP Media Player. In hard disk mode, you simply drag and drop files on to the player. In MTP Media Player mode, the AV 500 synchronises with Windows Media Player. In this mode, Media Player converts any files that the player doesn't natively support to a compatible format. Unfortunately, the converted files are in Windows Media Simple Profile, so they are low resolution and run at only 15fps.

The AV 500 plays DivX and XviD video files without any problems, but it can't play MPEG1 or MPEG2 video. Video files look fantastic on the AV 500's 4" screen, which is bright and has excellent contrast. The battery lasts for five-and-a-half hours of video playback. It can record video from a composite video source such as a video recorder. Recorded video quality is reasonable, if a little grainy.

The AV 500 also works well as a music player. You can browse tracks by artist, album, title, genre or year. Sound quality through the headphones is good, with clear midrange and treble but not much bass. Its battery life when playing music is impressive. The AV 500 kept going for 20 hours and 35 minutes – six hours longer than its nearest competitor in the group.

Although the AV 500 is the second most expensive player here, it has an excellent screen, good audio and video playback and an impressive battery. If you can afford it, this is the one to buy.

### SUMMARY

- ✓ High-contrast screen
- ✓ Excellent video playback
- ✓ Long battery life

PORTABLE MEDIA PLAYER 480x272 pixel display, 30GB hard disk, USB Hi-Speed interface  
PART CODE AV500 30GB  
SUPPLIER [www.digiuk.com](http://www.digiuk.com)  
DETAILS [www.archos.com](http://www.archos.com)



## ARCHOS Gmini 402 Camcorder



£200 inc VAT

Archos's Gmini 402 Camcorder is a small media player with an integrated digital video camera. It's easy to use, but its screen is too small to watch films comfortably.

Like the AV 500, the Gmini 402 has a metal screen surround and feels well made. It is about the same size as Creative's Zen Vision M but has a smaller 2.2" display. The Gmini is easier to use than its bigger brother, however, as it has a simpler set of controls. The directional keypad controls the main menus and any additional options are accessed using three buttons beneath the screen.

The Gmini 402 can be set to function as an external hard disk or a Windows MTP Media Player when plugged into your PC. This lets you drop files on to the disk or synchronise files with Windows Media Player, but Media Player converts unsupported video files to a low-quality format. Like the AV 500, the Gmini 402 cannot play MPEG1 and MPEG2 files, but it played our XviD and DivX files perfectly.

The 402's screen is in a 4:3 ratio rather than the 16:9 other players use, so our widescreen test videos were cropped at the edges. You can turn cropping off, but this makes widescreen videos too small to watch comfortably. The screen is bright but has low contrast and some colours looked washed out. Its battery lasted a mediocre three hours and 40 minutes when playing video, so it's not suitable for long-distance travellers who want to while away many hours on a plane. The video camera is impressive, though, and far better than any mobile phone camera. Videos are smooth and not too grainy even when shot indoors.

Browsing through your music collection is simple, too. You can sort music by artist, album, genre, title and year. The 402 has the same headphones as the AV 500, but the player sounds more tinny than its larger cousin.

Like Creative's Zen Vision M, the Gmini 402 is a very portable media player. Its screen isn't large enough to watch for long periods of time, but it is good value and far easier to use.

### SUMMARY

- ✓ Easy to use
- ✓ Well made
- ✗ Small screen

PORTABLE MEDIA PLAYER 220x176 pixel display, 20GB hard disk, USB Hi-Speed interface  
PART CODE Gmini 402 CAM  
SUPPLIER [www.microanvika.com](http://www.microanvika.com)  
DETAILS [www.archos.com](http://www.archos.com)



## CREATIVE Zen Vision M



£240 inc VAT

Creative's Zen Vision M bears a passing resemblance to the iPod video, but it supports a wider range of video formats. It has good battery life but is hard to use and can be fussy about the way files are encoded.

Along with Archos's AV 500, the Zen Vision M is the best-looking player in the group. It's also reasonably compact, and its 2.5" screen is larger than the Gmini 402's. Its interface is a strange combination of stiff buttons and a touch pad and can be confusing even when you are used to it.

While it is possible to assign up to 16GB of hard disk space as removable storage, the Zen Vision M won't recognise files dropped directly on to it in Windows. Instead, you need to use Windows Media Player to transfer content to the player. This process is significantly slower than copying files across using Windows Explorer, but it should ensure that all files are converted to a format the player understands.

Unfortunately, the Vision M had trouble with several files that Windows Media Player copied across without conversion. Our MPEG2 test file had too high a bit rate for the player and we couldn't scan through XviD files. As with the other Windows Media Player-compatible devices, video files converted with Media Player were blocky and jerky. DivX files played flawlessly, however, and the high-contrast screen is large enough for comfortable widescreen video viewing. The Vision M's battery lasted for four hours and 47 minutes in our video playback test, which is fine for a couple of films.

The Vision M is supplied with enormous bud headphones. These provide plenty of bass but aren't that comfortable in the ear and sound fairly muffled. The battery lasted an impressive 11 hours and 55 minutes when playing music.

Creative's Vision M looks more polished than most of the players here and has a large screen considering its small body. Its sound quality isn't great and it is fussy about video formats, though, so it's overshadowed by Archos's Gmini 402.

### SUMMARY

- ✓ Large screen for player's size
- ✗ Hard to use
- ✗ Fussy about some video formats

PORTABLE MEDIA PLAYER 320x240 pixel display, 30GB hard disk, USB Hi-Speed interface  
PART CODE 70PF169000006  
SUPPLIER [www.firebox.com](http://www.firebox.com)  
DETAILS [www.creative.com](http://www.creative.com)





## GECUBE PMP100



£200 inc VAT

GeCube's PMP100 is one of the cheaper players here, but its terrible screen and tendency to crash make it a poor choice.

The PMP100's white finish looks good and the device is easy to use. It has a directional keypad and two large buttons that help you navigate through menus. The interface is pleasingly simple. First you select an icon to choose whether you want to play music or video files, then the menu allows you to browse through the hard disk to find the song or film you want to play. You can't browse your music by ID3 information, though, and there is no support for music or video playlists.

The PMP100 can play DVD VOB video files. GeCube claims that it can play XviD files, but it refused to play any of our test XviD films. More annoyingly, the player crashed several times. Instead of showing an error message when it couldn't cope with a video file, the player would freeze up. In the end, we kept a pin handy so that we could press the reset switch.

DivX files played well enough, but the PMP100's 3.6" screen isn't good enough to draw you into a film. Contrast is poor, colours are washed out and lifeless, and pixelation is noticeable during slow scenes. You can watch a couple of films in a row, though, as the PMP100's battery lasts for five hours and three minutes of video playback.

Audio quality is not much better, as the PMP100 is supplied with a terrible pair of headphones. They sound appalling, producing a horrible tinny sound with little bass or treble, and there's no way of telling which bud goes in which ear. Although its battery coped well with video files, the PMP100 ran for an unimpressive six hours and 13 minutes when playing music. You can record audio from the integrated microphone, but there are no audio or video inputs.

GeCube's PMP100 is easy to use and inexpensive, but it has a terrible screen and poor video support, and its tendency to crash is very annoying. Its headphones are also poor, and it can't beat Vivitar's DMD-P20 for value or Archos's AV 500 for video quality.

### SUMMARY

- ✓ Easy to use
- ✗ Poor screen and headphones
- ✗ Crashes when playing XviD files

PORTABLE MEDIA PLAYER 320x240 pixel display, 20GB hard disk, USB Hi-Speed interface  
PART CODE GC-PMP100-GR  
SUPPLIER [www.lowestonweb.com](http://www.lowestonweb.com)  
DETAILS [www.gecube.com](http://www.gecube.com)



## GP2X GP2X-F100



£125 inc VAT

While the other media players in the group have proprietary operating systems, the GP2X runs Linux and is shipped with a Software Development Kit. This makes it easy to develop applications and games for the player, and there are many already available.

The GP2X looks like a late-1980s games console, and although it is made of high-quality plastic, its directional pad and buttons feel rather flimsy. The interface is very simple, and provides access to video, audio, photos and applications through large icons on the home screen. The GP2X has no integrated hard disk and doesn't come with a memory card, so you'll have to buy an SD card and put the files you need on it before you can navigate to them with the player's file browser.

When playing music, the GP2X doesn't recognise ID3 tags or support playlists. It isn't supplied with headphones, but when we tested it with our reference pair we found that the sound was boomy, and most of the equaliser settings created distortion.

The manufacturers claim that the GP2X can play WMV files, but we had no luck with any of our test files. XviD files would play, but only when encoded with MP3 audio. Our DivX test files were fine most of the time but would occasionally stutter. The player is not ideal for watching films, as the 3.5" screen has a fairly low resolution and horizontal lines are noticeable across the picture. But the main problem is the battery life. A pair of AA batteries lasted for just one hour and 15 minutes in our video playback test, so you'll struggle to watch an entire film in one go.

We had fun playing with the applications available for the GP2X. We found that it could run programs such as the MAME arcade machine emulator without any problems. The wealth of available programs means the GP2X would be ideal for an enthusiast who wants to make the most of the third-party applications. It is also fairly cheap at £125 including VAT. But with its poor screen, poor audio quality, lack of memory card and very short battery life, it isn't a good choice as a portable media player.

### SUMMARY

- ✓ Low price
- ✗ Poor sound quality
- ✗ Terrible battery life

PORTABLE MEDIA PLAYER 320x240 pixel LCD, SD card slot, USB Hi-Speed interface  
PART CODE GP2X-F100  
SUPPLIER [www.gp2x.co.uk](http://www.gp2x.co.uk)  
DETAILS [www.gp2x.com](http://www.gp2x.com)



## IUBI PMP2010



£299 inc VAT

While other media players have 20GB or 30GB hard disks, Iubi's PMP2010 provides an enormous 100GB of storage. It is good value for a media player with so much space for films and music, but its user interface is strange and its battery life is short.

The interface uses flashy animated menus, but the device is a pain to use. The track skip buttons scroll through the main menu, but the volume keys scroll through lists of your media files. The buttons are stiff and difficult to press and there is no menu key for context-sensitive options.

The PMP2010 supports just two types of video file: XviD and DivX. These are good formats for storing long movies or TV programmes, but most of the other players in the group are more versatile. While our DivX files played smoothly, the player's buttons stopped responding every time we played an XviD file, so there was no way of adjusting the volume or pausing playback.

The PMP2010's screen is a large 4.3" and colours are vibrant enough to do films justice. Annoyingly, widescreen films are stretched vertically to fit the screen, producing a deformed image. The player performed badly in our battery life test, playing video for just two hours and 28 minutes. This will limit you to watching a single film on any trip you take.

As with many media players, you have to browse for music by filename rather than by artist or genre. The player doesn't show any ID3 tag information, so your filenames need to be up to date. The player is incredibly slow when loading music files, taking around five seconds to skip a track. The supplied headphones sound good, though, producing a warm, bassy sound. Unfortunately, the battery is as limited when playing music as it is when playing video files; it lasted for just three hours and 12 minutes in our test.

The PMP2010 is expensive, although it's still good value for a 100GB portable media player. However, its tricky interface, limited file support and terrible battery life make it one to avoid.

### SUMMARY

- ✓ Huge hard disk
- ✗ Difficult interface
- ✗ Terrible battery life

PORTABLE MEDIA PLAYER 480x272 pixel display, 100GB hard disk, USB Hi-Speed interface  
PART CODE PMP2010  
SUPPLIER [www.advancedmp3players.co.uk](http://www.advancedmp3players.co.uk)  
DETAILS [www.advancedmp3players.co.uk](http://www.advancedmp3players.co.uk)



## PQI mPack P600

★★★★

£300 inc VAT

PQI's mPack P600 has a clamshell design, which protects the screen from damage. This means you could safely store it in a bag or pocket without the need for a separate case. Its screen is decent, but the player isn't particularly adept at handling audio and video files.

While the clamshell Flashtrex XT (right) is a bit too big for a pocket, the mPack P600 is quite compact. The base and screen hinge are solidly made, but the navigation buttons have an unpleasant feel when clicked.

The player connects to your computer through a USB port and appears as a hard disk in Windows. It supports MPEG1 and MPEG2 files as well as XviD videos. It's one of only two players here that support VOB files. This allows you to copy the video files from an unprotected DVD and play them on the move.

The P600's 4" screen is one of the best in the group. It is bright with excellent contrast, although the narrow vertical viewing angle means you have to hold the base of the player at an awkward angle when watching videos.

When playing music the P600 provides options to browse your music files by artist and album, but the player doesn't scan the tracks on its hard disk automatically to build a database of this information. Instead, you need to use PQI's software on your PC, which updates the database as you add files. When playing a file the P600 displays the filename onscreen. Strangely, you can make playlists on the device itself, but you can't edit them.

The battery lasted for almost eight hours when playing audio and four hours and 42 minutes when playing video. Scrolling through lists of tracks takes forever as the player's software is very slow. Sound quality from the supplied headphones is excellent, though, with clear bass. The supplied speakers are very loud for their size.

PQI's mPack P600 has an impressive screen and unmatched video compatibility, but its video and audio playback software is primitive. It is also expensive and, despite its excellent audio quality, it's no match for Archos's slightly cheaper AV 500.

### SUMMARY

- ✓ Excellent sound quality
- ✗ Audio player not easy to use
- ✗ Expensive

PORTABLE MEDIA PLAYER 480x272 pixel display, 20GB hard disk, USB Hi-Speed interface  
PART CODE VB02-032D-0111  
SUPPLIER [www.advancedmp3players.co.uk](http://www.advancedmp3players.co.uk)  
DETAILS [www.pqi.com.tw](http://www.pqi.com.tw)



## SMARTDISK Flashtrex XT

★★★

£235 inc VAT

SmartDisk's Flashtrex XT is a huge media player with a large, 40GB hard disk. Its operating system feels unfinished, though.

The Flashtrex XT is much larger than the other media players in the group and almost twice as heavy at 440g. This added size doesn't mean a larger screen, though; its 3.6" display is average for the group. The menu system is easy to use, with a directional keypad and forward and back buttons to navigate the player's options. Sadly, the interface is no prettier than the Flashtrex itself, with crudely drawn icons in bright pastel colours.

Unlike the Archos and Creative players, the Flashtrex is recognised only as a hard disk in Windows. The player doesn't support MPEG1 or MPEG2 files, but it played our XviD and DivX files without a hitch. The documentation states that the Flashtrex also supports the QuickTime MOV format, but we couldn't get it to play any of our test MOV files.

Videos play smoothly but, as with the GP2X, the screen has noticeable horizontal lines across it, and contrast is poor. There is no way of scanning forwards and backwards through files, so it's impossible to resume watching a film from half way through. Battery life in our video playback test was excellent, however, lasting for over six hours.

Like the Archos AV 500 and Vivitar DMD-P20, the Flashtrex XT will record from a composite video source. The recorded video is smooth but suffers from noticeable compression artefacts.

The audio player displays ID3 tag information, but you can't search your audio files by artist or album. This means you have to browse through the hard disk for music, so it's essential that you organise your files into folders. The supplied headphones aren't bad, but they suffer a little from muddy treble.

SmartDisk's Flashtrex XT is good value for a media player with so much storage, but it is barely portable and has a poor screen. Not being able to scan through video files is a serious problem, so despite the low price it's hard to recommend.

### SUMMARY

- ✓ Big disk and battery
- ✗ Poor screen
- ✗ Clunky operating system

PORTABLE MEDIA PLAYER 320x240-pixel display, 40GB hard disk, USB Hi-Speed interface  
PART CODE FTXXT40  
SUPPLIER [www.misco.co.uk](http://www.misco.co.uk)  
DETAILS [www.smartdisk.com](http://www.smartdisk.com)



## VIVITAR DMD-P20

★★★★★

£199 inc VAT



At just under £200, Vivitar's DMD-P20 is one of the cheaper portable media players in the group, and it's the cheapest player here with a hard disk for storing lots of music or large video files. Its headphones and video battery life are poor, but it can play audio for a long time and has a good screen.

The DMD-P20 has a neat, simple design, with the front dominated by its 3.5" display. The player is easier to use than many and most of its functions are controlled by a joystick surrounded by a wheel that adjusts the volume. This volume wheel is a weak point, though. It's made of brittle plastic and doesn't feel particularly robust.

The player starts up impressively quickly. Although the menu screen isn't as slick as the Archos AV 500's, it is clear and runs smoothly. The DMD-P20 acts as a hard disk under Windows, so you have to copy content manually into the appropriate folders on the device. The player can play MPEG1 and DivX files, but we couldn't get it to play WMV files and it doesn't support the free XviD codec.

The DMD-P20's screen has plenty of contrast and our test films encoded in DivX format looked impressive. Vivitar couldn't tell us the screen's resolution, but it looks like 320x240, and films were free from pixelation. The battery is mediocre, though, and the player gives up after just three hours and 37 minutes of playing video. You can record from a composite video source.

The DMD-P20's audio player supports ID3 tag information, but you have to browse for songs to play by filename. The headphones are uncomfortable and sound muffled. This is a shame, because with a battery that can play music for well over 14 hours the DMD-P20 would otherwise be a decent music player.

The DMD-P20 plays audio for a long time and its screen is ideal for playing films stored in DivX format. It's not perfect, with headphones that will need replacing and a short battery life when playing video files, but it's a decent media player for the price.

### SUMMARY

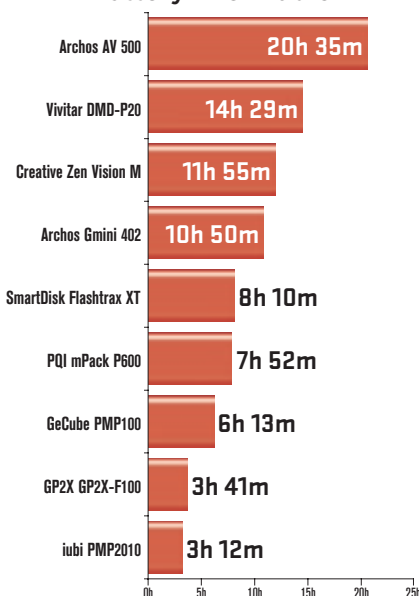
- ✓ Good value
- ✓ Great screen
- ✗ Battery life limited when playing video

PORTABLE MEDIA PLAYER 3.5" display, 20GB hard disk, USB Hi-Speed interface  
PART CODE DMD-P20  
SUPPLIER [www.advancedmp3players.co.uk](http://www.advancedmp3players.co.uk)  
DETAILS [www.vivitar.co.uk](http://www.vivitar.co.uk)

# BENCHMARKS

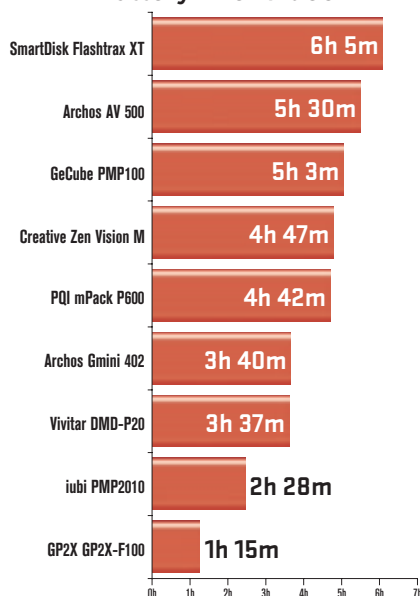
## Performance Battery life tests and data transfer speeds

### Battery Life: Audio



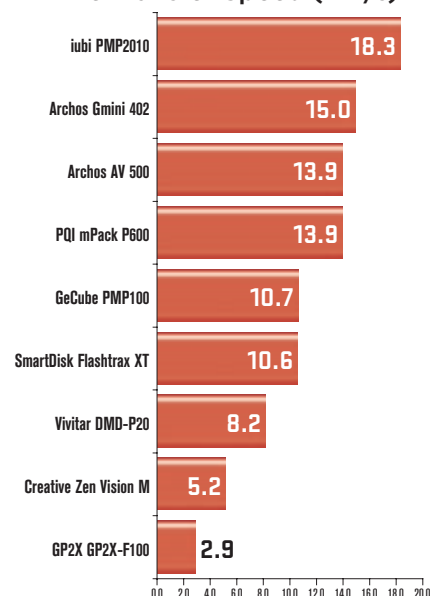
▲ We tested how long each player could continuously play back music files before needing recharging or fresh AA cells.

### Battery Life: Video



▲ The players run out of power more quickly when playing video. Remember you'll usually need at least two hours to watch a film.

### File Transfer Speed (MB/s)



▲ Video files are large, so copying them can take time. We tested how quickly media files could be copied to each player.

## How we test Portable media players

When buying a portable media player, it's important that you know which types of file it can play. All the manufacturers in this test provide a list of file types their devices support; you can find this information in the table on page 118. To check that this information is accurate, we test each player with a range of test files encoded in different formats. Check our reviews to see which played perfectly and which wouldn't play at all.

Our video test files are encoded from the same video DVD. We encode files in MPEG1, MPEG2, DivX, XviD, QuickTime MOV and

Windows Media WMV formats, all at the standard DVD resolution of 720x576 pixels.

To test audio file compatibility we use a selection of audio files from various musical genres. Our files are encoded in MP3, WMA, Wav, OGG and AAC formats. We assess the quality of audio playback using the headphones supplied with each player.

To test file transfer speeds, we time how long it takes to copy 150 songs and a film on to each player using Windows Explorer. The time it takes is then converted to a transfer speed in megabytes per second. We tested both Archos players in external hard disk mode

rather than using Windows Media Player. Creative's Zen Vision M doesn't accept media files transferred in this manner, so we synchronised the same set of files using Windows Media Player instead.

Finally, we test the length of time each battery lasts when playing video and audio. For the video test, we leave each device playing a single long video file until it runs out of power. For the audio test, we leave each player looping through a set of MP3 files for as long as the battery lasts. Both tests are conducted with the headphone volume set to a comfortable level.

## Encoding video files for a portable player

The portable media players in this month's Labs support a variety of video file types, but if you want to store long videos the XviD and DivX codecs provide the best quality at a manageable file size. While some of the players in the test come with video-encoding software, there are also free programs available that can do the job just as well or better.

The XviD codec is open source and free, and DivX is free if you just want to play back video. If you want to create your own DivX files, you can use the DivX Create package for free for 15 days, but it costs \$20 (around £11) if you want to use it for longer. Both codecs are similar in quality, so pick the one that your player supports. If it supports both, we recommend the free XviD.

To encode a video file to either format, you must first download the necessary codecs. These are available from [www.xvid.org](http://www.xvid.org) and [www.divx.com](http://www.divx.com). Once these are installed, you need a video-editing package to encode the files. We recommend VirtualDub as it is free and easy to use. You can download it from [www.virtualdub.org](http://www.virtualdub.org).

If you want to encode a non-copyrighted DVD to an XviD file, the best program is Handbrake. This is available to download from <http://handbrake.m0k.org>. The finished version is currently available only for Mac OS X, but there is a functional Windows version available from <http://tinyurl.com/err62>. Handbrake will encode an entire DVD or a range of chapters to a single XviD file, but it doesn't support DivX. We found that the best way to encode a DVD

to a DivX file is to use Handbrake to make an XviD file and then use VirtualDub to convert that file to DivX.



▲ Once you have the codecs, you can use the free VirtualDub to create DivX and XviD files

## PORTABLE MEDIA PLAYERS

|                                   | BEST BUY                                                                                                                   |                                                          |                                                  |                                                                          |                                               |                                                       |                                                                                                   |                                                                                                                                     | BUDGET BUY                                                                                  |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| MANUFACTURER                      | ARCHOS                                                                                                                     | ARCHOS                                                   | CREATIVE                                         | GECUBE                                                                   | GP2X                                          | IUBI                                                  | PQI                                                                                               | SMARTDISK                                                                                                                           | VIVITAR                                                                                     |
| Model                             | AV 500                                                                                                                     | Gmini 402 Camcorder                                      | Zen Vision M                                     | PMP100                                                                   | GP2X-F100                                     | PMP2010                                               | mPack P600                                                                                        | Flashtrax XT                                                                                                                        | DMD-P20                                                                                     |
| Rating                            | ★★★★★                                                                                                                      | ★★★★                                                     | ★★                                               | ★                                                                        | ★★                                            | ★★                                                    | ★★★                                                                                               | ★★                                                                                                                                  | ★★★★                                                                                        |
| Hardware                          |                                                                                                                            |                                                          |                                                  |                                                                          |                                               |                                                       |                                                                                                   |                                                                                                                                     |                                                                                             |
| Capacity (formatted)              | 30GB (27.6GB)                                                                                                              | 20GB (18.6GB)                                            | 30GB (27.8GB)                                    | 20GB (18.6GB)                                                            | SD card dependent                             | 100GB (93.1GB)                                        | 20GB (18.6GB)                                                                                     | 40GB (37.2GB)                                                                                                                       | 20GB (18.6GB)                                                                               |
| Interface                         | USB Hi-Speed                                                                                                               | USB Hi-Speed                                             | USB Hi-Speed                                     | USB Hi-Speed                                                             | USB Hi-Speed                                  | USB Hi-Speed                                          | USB Hi-Speed                                                                                      | USB Hi-Speed                                                                                                                        | USB Hi-Speed                                                                                |
| Battery type and charging options | Li-ion, supplied charger                                                                                                   | Li-ion, supplied charger                                 | Li-ion, USB, supplied charger                    | Li-ion, USB, supplied charger                                            | AA, no charger                                | Li-polymer, USB, supplied charger                     | Li-ion, USB, supplied charger                                                                     | Li-ion, supplied charger                                                                                                            | Li-polymer, USB, supplied charger                                                           |
| Dimensions (WxDxH)                | 124x18x76mm                                                                                                                | 106x17x60mm                                              | 104x19x62mm                                      | 125x26x78mm                                                              | 144x34x83mm                                   | 135x30x78mm                                           | 120x95x27mm                                                                                       | 158x35x97mm                                                                                                                         | 115x23x74mm                                                                                 |
| Weight                            | 255g                                                                                                                       | 160g                                                     | 164g                                             | 285g                                                                     | 161g                                          | 250g                                                  | 290g                                                                                              | 440g                                                                                                                                | 230g                                                                                        |
| Features                          |                                                                                                                            |                                                          |                                                  |                                                                          |                                               |                                                       |                                                                                                   |                                                                                                                                     |                                                                                             |
| Display                           | 4", 262,000 colour LCD, 480x272 pixels                                                                                     | 2.2", 262,000 colour LCD, 220x176 pixels                 | 2.5", 262,000 colour LCD, 320x240 pixels         | 3.6", 262,000 colour LCD, 320x240 pixels                                 | 3.5", 16.7 million colour LCD, 320x240 pixels | 4.3", 16.7 million colour LCD, 480x272 pixels         | 4", 16 million colour LCD, 480x272 pixels                                                         | 3.6", 16.7 million colour LCD, 320x240 pixels                                                                                       | 3.5" colour LCD, resolution not disclosed                                                   |
| Expansion slot                    | None                                                                                                                       | None                                                     | None                                             | CompactFlash                                                             | Secure Digital                                | None                                                  | None                                                                                              | CompactFlash (Smart Media, MultiMedia Card, Secure Digital, Memory Stick, Memory Stick PRO through supplied adaptor)                | CompactFlash, Secure Digital, MultiMedia Card, Memory Stick                                 |
| FM radio                          | No                                                                                                                         | No                                                       | Yes                                              | No                                                                       | No                                            | No                                                    | No                                                                                                | Yes                                                                                                                                 | Yes                                                                                         |
| Audio record options              | Microphone, stereo phono                                                                                                   | Microphone, stereo phono                                 | Microphone                                       | Microphone                                                               | None                                          | Microphone, stereo phono                              | None                                                                                              | Microphone, stereo phono                                                                                                            | Microphone, stereo phono                                                                    |
| Video record options              | Composite video with stereo phono audio                                                                                    | Internal VGA camera                                      | None                                             | None                                                                     | None                                          | Composite video with stereo phono audio               | None                                                                                              | Composite video with stereo phono audio                                                                                             | Composite video with stereo phono audio                                                     |
| Inputs                            | USB Hi-Speed, 3.5mm audio/video                                                                                            | USB Hi-Speed, 3.5mm audio                                | USB Hi-Speed                                     | USB Hi-Speed                                                             | USB Hi-Speed                                  | USB Hi-Speed, 3.5mm audio/video                       | USB Hi-Speed                                                                                      | USB Hi-Speed, 3.5mm audio/video                                                                                                     | USB Hi-Speed, 3.5mm audio/video                                                             |
| Outputs                           | 3.5mm headphone socket, 3.5mm audio/video socket, S-video, IR                                                              | 3.5mm headphone socket, 3.5mm audio/video socket         | 3.5mm headphone socket, 3.5mm audio/video socket | 3.5mm headphone socket                                                   | 3.5mm headphone socket                        | 3.5mm headphone socket, 3.5mm audio/video socket      | 3.5mm headphone socket, 3.5mm video socket, optical S/PDIF audio                                  | 3.5mm headphone socket, 3.5mm audio/video socket                                                                                    | 3.5mm headphone socket, 3.5mm video socket                                                  |
| Supplied with                     | Remote control, dock, remote control cable, 2x 3.5mm to composite video and stereo phono audio cables, 2x SCART converters | 3.5mm to composite video socket, 3.5mm audio/video cable |                                                  | Remote control, composite video and stereo phono audio cable, carry case |                                               | 3.5mm to composite video and stereo phono audio cable | 3.5mm to stereo phono audio cable, 3.5mm to component video cable, 3.5mm to composite video cable | Memory card adaptor, 3.5mm to composite video and stereo phono audio cable, composite/S-video/stereo phono audio-to-SCART converter | Dock, 3.5mm to composite video and stereo phono audio cable, 3.5mm to composite video cable |
| Supplied headphones               | Bud headphones                                                                                                             | Bud headphones                                           | Bud headphones                                   | Bud headphones                                                           | None                                          | Bud headphones                                        | Bud headphones                                                                                    | Bud headphones                                                                                                                      | Bud headphones                                                                              |
| Test results                      |                                                                                                                            |                                                          |                                                  |                                                                          |                                               |                                                       |                                                                                                   |                                                                                                                                     |                                                                                             |
| Audio battery life                | 20h 35m                                                                                                                    | 10h 50m                                                  | 11h 55m                                          | 6h 13m                                                                   | 3h 41m                                        | 3h 12m                                                | 7h 52m                                                                                            | 8h 10m                                                                                                                              | 14h 29m                                                                                     |
| Video battery life                | 5h 30m                                                                                                                     | 3h 40m                                                   | 4h 47m                                           | 5h 3m                                                                    | 1h 15m                                        | 2h 28m                                                | 4h 42m                                                                                            | 6h 5m                                                                                                                               | 3h 37m                                                                                      |
| File transfer speed               | 13.9MB/s                                                                                                                   | 15.0MB/s                                                 | 5.2MB/s                                          | 10.7MB/s                                                                 | 2.9MB/s                                       | 18.3MB/s                                              | 13.9MB/s                                                                                          | 10.6MB/s                                                                                                                            | 8.2MB/s                                                                                     |
| Supported audio formats           | MP3, WMA, Wav                                                                                                              | MP3, WMA, Wav                                            | MP3, WMA, Wav                                    | MP3, WMA, Wav, OGG                                                       | MP3, OGG                                      | MP3, WMA, OGG                                         | MP3, WMA, AAC, OGG, Wav                                                                           | MP3, WMA                                                                                                                            | MP3, WMA, AAC, CDA, Wav                                                                     |
| Supported image formats           | JPEG, BMP                                                                                                                  | JPEG, BMP                                                | JPEG, BMP, GIF, TIFF                             | JPEG                                                                     | JPEG, BMP, PCX, GIF, PNG                      | JPEG                                                  | JPEG, GIF, BMP, PNG                                                                               | JPEG, BMP, GIF                                                                                                                      | JPEG, BMP, TIFF                                                                             |
| Supported video formats           | XviD, DivX, WMV Simple Profile                                                                                             | XviD, DivX, WMV Simple Profile                           | MPEG1, MPEG2, DivX, XviD, WMV Simple Profile     | MPEG1, MPEG2, DivX, XviD, VOB                                            | DivX, XviD, WMV Simple Profile                | XviD, DivX                                            | MPEG1, MPEG2, XviD, VOB                                                                           | MPEG4, DivX, XviD, WMV Simple Profile, QuickTime                                                                                    | MPEG1, DivX, WMV Simple Profile                                                             |
| Buying information                |                                                                                                                            |                                                          |                                                  |                                                                          |                                               |                                                       |                                                                                                   |                                                                                                                                     |                                                                                             |
| Price including VAT               | £281                                                                                                                       | £200                                                     | £240                                             | £200                                                                     | £125                                          | £299                                                  | £300                                                                                              | £235                                                                                                                                | £199                                                                                        |
| Warranty                          | One year                                                                                                                   | One year                                                 | One year                                         | One year                                                                 | One year                                      | One year                                              | One year                                                                                          | One year                                                                                                                            | One year                                                                                    |
| Supplier                          | www.digiuk.com                                                                                                             | www.microanvika.com                                      | www.firebox.com                                  | www.lowestonweb.com                                                      | www.gp2x.co.uk                                | www.advancedmp3players.co.uk                          | www.advancedmp3players.co.uk                                                                      | www.misco.co.uk                                                                                                                     | www.advancedmp3players.co.uk                                                                |
| Details                           | www.archos.com                                                                                                             | www.archos.com                                           | www.creative.com                                 | www.gecube.com                                                           | www.gp2x.com                                  | www.advancedmp3players.co.uk                          | www.pqi.com.tw                                                                                    | www.smartdisk.com                                                                                                                   | www.vivitar.co.uk                                                                           |
| Part code                         | AV500 30GB                                                                                                                 | Gmini 402 CAM                                            | 70PF169000006                                    | GC-PMP100-GR                                                             | GP2X-F100                                     | PMP2010                                               | VB02-032D-0111                                                                                    | FTXXT40                                                                                                                             | DMD-P20                                                                                     |

## Labs verdict Portable media players

We were surprised by the range of abilities demonstrated by the products in this Labs test. Some were easier to use than others and some produced far better video quality. Most played a good range of file formats, but some excelled while others disappointed us.

Several players stand out. The GP2X is an intriguing and cheap device, and is ideal for those who enjoy experimenting with open-source software and emulators. Battery life is dismal, though. GeCube's PMP100 amazed us for all the wrong reasons; having reset the device after several crashes, we were

frustrated by its software. The iubi PMP2010 has a huge hard disk that can store dozens of films, so it was disappointing to find that it lasted less than two-and-a-half hours in our video playback battery test.

PQI's mPack is a better choice and its ability to play DVD VOB video files is clever. Its screen is great, too, but it's expensive. If you're on a tight budget, we recommend Vivitar's DMD-P20. It has poor headphones and its video battery life is limited, but it's a very usable media player for less than £200 including VAT. It wins our Budget Buy award.



If you can afford to pay a little more, buy the Archos AV 500. Getting files on to it is easy and it plays both DivX and XviD video files without any trouble. Its audio player is far better than many in the group and it has one of the best batteries here. It wins our Best Buy award. **CS**